

## REMARKS

Claims 1 - 12 remain active in this application. Amendment of claims 1 and 7 has been requested for clarity by inclusion of the word "simultaneously" and amplifying the context. Support for the amendments appears throughout the application, including the Title. No new matter has been introduced into the application. The withdrawal of the previous objection to the declaration in view of the Supplemental Declaration filed with the previous response is noted with appreciation.

The Examiner comments that the claims do not require simultaneous vertical filtering and chrominance conversion but only that the results can be concurrently obtained. This assertion is respectfully traversed. Recourse to virtually any authoritative dictionary will reveal that "concurrently" and "simultaneously" are substantially synonyms but possibly with the connotation that "concurrently" may be somewhat more appropriate to an ongoing process while "simultaneously" may be somewhat more appropriate to brief events. In the case of the invention, the vertical filtering and chrominance conversion would be well-described as either an event or a process or both and thus the word "simultaneous" has also been supplied. However, it is respectfully submitted that the substance of the claimed subject matter is unchanged and, particularly since 'concurrently' and "simultaneously" are synonyms, no new issue can be raised by the amendments requested above.

The Examiner appears to maintain the requirement that Figures 1 and 2 should be labeled "Prior Art" rather than "Related Art" based on the description of "typical" processing at page 2, lines 23 - 31. (The Examiner's remarks and the apparent requirement are made in the "response to Arguments" section of the

action and is not stated as a "requirement" *per se* but only an assertion that Figures 1 and 2 "should be designated by a legend such as --Prior Art-- because only that which is old is illustrated" and then appears to rely upon a cited article, implying that all that is illustrated is disclosed therein.) This apparent requirement is respectfully traversed for the reasons of record and the further remarks provided below.

Initially it is respectfully submitted that Figures 1 and 2 have already been "designated with a label such as Prior Art" since they have been clearly designated as "Related Art". Therefore, it is respectfully submitted that the drawings are already fully in compliance with and completely satisfy the requirements of M.P.E.P. §608.02(g). Accordingly, it is respectfully submitted that there is no basis for any objection or requirement.

Second, it is respectfully submitted that, other than compliance with a formal requirement, what is at issue here is the scope of any admission of prior art by Applicant. Therefore, apparent reliance of prior art, particularly without a demonstration that all subject matter illustrated is disclosed in that prior art, is utterly inappropriate and irrelevant to the terms of the label applied to the drawings in accordance with M.P.E.P. §608.02(g)

Third and similarly, it is again respectfully submitted that the precedent of *In re Nomiya*, noted in the previous response, requires that everything the Applicant has said about the prior art must be considered in determining the scope of any admission. The passage now cited by the Examiner in support of the apparent requirement (and the passage at page 13, line 30) admits only that it is conventional to perform processing in a sequential or pipelined fashion as illustrated by the inclusion of a box labeled "Figure 1" in Figure 2 but admits nothing further about the

remainder of the subject matter of Figures 1 and 2. The Examiner has clearly not considered the other passages cited in the previous response which clearly indicate that Figures 1 and 2 are not only arranged to facilitate an understanding of the invention but *differ* from the prior art to facilitate an understanding of the invention by outlining how filter coefficients could be derived and used in sequential or pipelined processing at the time of the filing of the application (and thus not necessarily prior art under 35 U.S.C. §102) and that the same filter function can be obtained using hybrid coefficients as discussed on pages 12 - 15 of the specification.

In this regard and in response to the Examiner's request under 37 C.F.R. §1.56, the invention may be considered to be embodied in Figures 1 and 2 to the extent that Figures 1 and 2 comport with the illustration of the preferred embodiment of the invention in Figure 3 and the similarity of the architecture of Figure 1 thereto which serves to emphasize the fact that the preferred embodiment of the invention as illustrated in Figure 3 is able to concurrently provide both vertical spatial filtering and chrominance conversion while the similar architecture of Figure 1 is only capable of providing vertical spatial filtering and requires subsequent processing of Figure 2 (which includes Figure 1) to achieve chrominance conversion. More specifically, buffers 16, 18 and filter 20 of Figure 1 and buffers 16, 18 buffers 36, 38 and filter 40 of Figure 2 correspond to the invention and are not representative of prior art.

Fourth, determination of what is and is not prior art requires analysis under 35 U.S.C. §102 and that which may be "old" or known at the time of the invention or filing of the present application is not necessarily qualified as prior art. The informal

drawings originally filed with this application were drawn by an inventor for the purpose of facilitating an understanding of the present invention for which some departures from the prior art, as noted in the specification, are included. Therefore, it is respectfully submitted that Figures 1 and 2 are not representative of the prior art at the time of filing the present application and it is believed to be improper to require (or request) amendment of the drawings or specification which might be construed as an assertion contrary to the plain truth of the matter and potentially misleading under 37 C.F.R. §1.56 or an admission of prior art contrary to the belief of the inventors.

In summary, the foregoing is respectfully submitted to be a full and complete response to any requirement(s) which may have been made by the Examiner in regard to labeling of the drawings and the issue of potential abandonment of the application should not be raised. The formal drawings of record already include labels in Figures 1 and 2 which fully comply with the requirements of the M.P.E.P. and any requirement is thus without basis in this application. Moreover, the Examiner's assertions that Figures 1 and 2 are, in fact, prior art is improper founded on far less than everything Applicant has said about the prior art, the scope of any admission has clearly been incorrectly determined and reliance on prior art documents in this regard is clearly improper, particularly when no demonstration of the full disclosure of the illustrated subject matter therein is provided, even in the statements of the rejection of the claims based on the same reference. Accordingly, reconsideration and withdrawal of any requirements made in regard to the drawings is respectfully requested.

Claims 1 and 7 (and claim 5 in a separate statement) have been rejected under 35 U.S.C. §103 as

being unpatentable over Cheng et al. in view of Li. Claims 2 - 4, 6, and 8 - 11 have been rejected under 35 U.S.C. §103 as being unpatentable over Cheng et al. in view of Li and Mancuso. Claim 12 has been rejected under 35 U.S.C. §103 as being unpatentable of Cheng et al. in view of Li and Ozaki et al. Essentially, the Examiner has repeated the previous grounds of rejection but now includes reliance upon Li for teaching "obtaining vertically spatially filtered data and chrominance converted data" in connection with JPEG encoding of image data. These grounds of rejection are respectfully traversed for the reasons of record and the further remarks provided below.

A detailed discussion of Cheng et al. was provided in the remarks appended to the previous response filed August 5, 2004, which is hereby fully incorporated by reference. In summary, Cheng et al. does not disclose a vertical spatial filter or any chrominance conversion technique much less any method or apparatus for performing such functions concurrently or simultaneously using hybrid coefficients. Rather, an HSI (hue, saturation, intensity) model for filtering is described which Cheng et al. asserts to closely resemble the color sensing properties of human vision. Cheng et al. states that conversion between an HSI color space and an RGB color space (e.g. from HSI to RGB or from RGB to HSI) is complicated and non-linear compared to conversion between other color spaces. Because of this conversion (required for image processing in an RGB color space as is usually done), there is a need to reduce the magnitude of noise in the HSI color space as noted at column 1, lines 44 - 59, and Cheng et al. is specific to filtering in the HSI color space, including its filter coefficients described at column 10, lines 15 - 67, and is entirely different from vertical spatial filtering as performed with chrominance conversion by the invention.

More specifically, Cheng et al. describes (at column 2, lines 41 - 56) a color model where the pixel data must first be converted to an HSI color space and then filtered and encoded at a higher bit rate than the remainder of the pixel data. No similar conversion process or higher bit rate is required by the invention. No mention is seen in Cheng et al. of applying consecutive lines of luminance and chrominance data, as claimed, which is necessary for vertical spatial filtering and chrominance conversion. Thus, the nature of HSI filtering is so different from vertical spatial filtering (and chrominance conversion) that the filtering of Cheng et al. clearly teaches away from the simultaneous/concurrent filtering and chrominance conversion of the invention. That is, not only does Cheng et al. fail to teach or suggest anything having to do with vertical spatial filtering or chrominance conversion, the filtering which is taught by Cheng et al. teaches away from the filtering and chrominance conversion of the invention and, moreover, cannot be modified to answer the claim recitations without precluding the intended function of Cheng et al. See *In re Gordon*, 221 USPQ 1125 (Fed. Circ., 1984).

Even if Cheng et al. could be properly modified by the teaching or suggestions of Li, it is evident that Li does not mitigate the many deficiencies and substantial irrelevancy of Cheng et al. Li simply describes a standard JPEG encoder in which data is transformed to a wavelet domain (e.g. discrete cosine transform) and then quantized. The quantizer coefficients are then regrouped to improve spatial resolution. This function is not that of a filter at all but a typical encoder quantizer with coefficients. At best, Li merely assumes vertically spatial filtered and chrominance converted data as an input but teaches nothing about how to derive it. In this regard, it is

noted that the Examiner merely asserts that the operation flow of Li comprises "obtaining vertically spatially filtered data and chrominance converted data" while making reference to Figure 2 and the first paragraph of page 3 of Li. There is no mention of filtering of luminance or chrominance data in this passage or Figure 2 but, rather, conversion of data of an RGB color space to decorrelated luminance, chrominance red and chrominance blue (YCrCb) color space or reversible component transform (RCT) component space.

Similarly, Cheng et al. cannot properly be modified in accordance with the teachings or suggestions of Mancuso et al. to answer the recitations of the claims. Even if proper, the teachings and suggestions of Mancuso do not mitigate the deficiencies and substantial irrelevance of Cheng et al. and, moreover, Mancuso et al. does not contain the teachings or suggestions which the Examiner evidently attributes to it.

More specifically, it is not disputed that conventional scanning will generate consecutive lines of progressive scan format. However, Mancuso et al. does not teach or suggest separation of progressive scanned data into luminance and chrominance components and stored vertically in buffers and does not disclose a vertical spatial filter or indicate how consecutive lines of progressive scanned data could be vertically stored. In regard to interlaced fields, the Examiner relies on components 604 and 608 of Mancuso et al. which are, in fact, as stated in the text also relied upon by the Examiner, a horizontal length computation block (604) and a vertical length computation block (608) respectively. These are both components of the de-blocking system of Mancuso et al. which reduce blocking artifacts and have nothing to do with a preprocessing method for consecutively presented lines

of image data, particularly of an odd field and an even field thereof. While column 8, line 54, to column 9, line 6, cited by the Examiner refer to a *horizontal* interpolation method, no reference is made to filtering luminance and chrominance data using hybrid filter coefficients or performing vertical spatial filtering concurrently/simultaneously with chrominance conversion.

Similarly, in regard to Ozaki et al., Figure 8a and column 6, line 65 to column 7, line 21, relied upon by the Examiner, is a block diagram of a scanning converter with an aliasing detector circuit and a time spatial filter with a switch for 2:1 sub-sampling. The sub-sampling is performed on intensity/luminance data by limiting bandwidth of the first set of intensity signals along a vertical temporal frequency. Thus, Figure 8a represents a temporal filter with 2:1 sub-sampling of lines of luminance data and not a vertical spatial filter. Ozaki et al. does not teach or suggest sub-sampling chrominance converted data. In any case, even if Ozaki et al did in fact, disclose anything of relevance to the invention, modification of Cheng et al. in accordance therewith would be improper as precluding operation of Cheng et al. (and/or Li) as discussed above.

In summary, it is again respectfully submitted that the Examiner has not made a *prima facie* demonstration of obviousness in regard to any claim in the application. Rather, the Examiner has effectively admitted that no such demonstration was made based on the prior art previously applied by the current reliance of Li in all grounds of rejection of record but has failed to show any relevance of Li to preprocessing of image data to be encoded other than the possible assumption that vertically spatially filtered data and chrominance converted data are input to the JPEG encoding process which does not mitigate



the deficiencies of the previously applied references as previously pointed out. Moreover, while the references clearly fail to teach or suggest the recitations of any claim, they similarly do not demonstrate a level of ordinary skill in the art which would support a conclusion of obviousness of the claimed subject matter by leading to an expectation of success in achieving the meritorious functions of the invention in providing simultaneous/concurrent vertical spatial filtering and chrominance conversion, particularly from substantially the same architecture of the processing circuitry and with reduced latency, as discussed on page 16, line 11, and does so with reduced hardware requirements; which functions are supported by the claim recitations of applying luminance and chrominance data of consecutively presented lines of data to respective filter inputs and applying hybrid filter coefficients to the filter, as recited in claim 1.

Accordingly, it is respectfully submitted to be evident that the various grounds of rejection asserted in the present office action are in error and that no *prima facie* demonstration of obviousness has been made in regard to any claim in the application. Therefore, reconsideration and withdrawal of the grounds of rejection asserted in regard to claims 1 - 12 is respectfully requested.

It was pointed out above that the above-requested amendments are non-substantive and do not raise any new issues and should be entered. Further, it is respectfully submitted that the finality of the present action is premature since it is axiomatic that an action should not be made final when the previous action did not include a demonstration of the *prima facie* propriety of the grounds of rejection asserted, as the Examiner has effectively admitted, as discussed above. It is also axiomatic that an action should not

be made final when that action similarly does not include a *prima facie* demonstration of the propriety of the grounds of rejection asserted therein, as discussed above. Therefore, it is respectfully submitted that the finality of the present office action should be withdrawn and the requested amendments entered as a matter of right. In any event, it is also respectfully submitted that entry of the above-requested amendments is well-justified as placing the application in condition for allowance or in the alternative, as materially reducing and/or simplifying issues for Appeal.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 09-0457 of international Business Machines Corporation (Endicott).

Respectfully submitted,



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